WHAT IS CLAIMED:

1. A grommet having an axis and configured to contain a wire harness and insertable into a through-hole formed in a vehicle panel, said grommet comprising a tubular portion and a funnel-shaped portion, said funnel-shaped portion comprising, sequentially from said tubular portion, a narrowed end section, a frusto-conical wall with external and internal faces, and an enlarged end section that comprises an external face provided with a circular groove portion, wherein:

said circular groove portion forms a circular ridgeline at a position nearest to said tubular portion, said frusto-conical wall comprises a thin wall section having a substantially uniform thickness and extending from said narrowed end section up to about a half way position along said axis in said frusto-conical wall, and a thick wall section having a substantially uniform internal radius and extending from said about half way position to and through said enlarged end section along said axis; and

said external face of said frusto-conical wall comprises a plurality of shallow recesses which are arranged at given intervals therebetween around the circular direction and which extend in a direction from said narrowed end section towards said circular ridgeline, said shallow recesses leading to deep recesses near said circular ridgeline, whereby protrusions are formed adjacent to said shallow and deep recesses.

2. The grommet according to claim 1, wherein each of said deep recesses has a base extending substantially parallel to said axis and an end wall rising substantially perpendicularly to said axis.

3. The grommet according to claim 1, wherein each of said shallow recesses has substantially the same width along said extending direction,

whereby each of said protrusions has a width narrowing towards said tubular portion.

4. The grommet according to claim 2, wherein each of said shallow recesses has substantially the same width along said extending direction, whereby each of said protrusions has a width narrowing towards said tubular portion.

5. The grommet according to claim 1, wherein said circular groove portion has a circular wall which inclines from said circular ridgeline radially inwardly in the direction extending away from said tubular portion.

6. The grommet according to claim 2, wherein said circular groove portion has a circular wall which inclines from said circular ridgeline radially inwardly in the direction extending away from said tubular portion.

7. The grommet according to claim 3, wherein said circular groove portion has a circular wall which inclines from said circular ridgeline radially inwardly in the direction extending away from said tubular portion.

8. The grommet according to claim 4, wherein said circular groove portion has a circular wall which inclines from said circular ridgeline radially inwardly in the direction extending away from said tubular portion.

9. The grommet according to claim 1, wherein said enlarged end section has an end face having a central opening with a peripheral rim; from said rim extends a second tubular portion which has a determined length and comprises a corrugated section along said length, and an end section; from said end section extends a second funnel-shaped portion having a narrowed end section and an enlarged end section having an external face; and wherein said external face is provided with a second circular groove portion, whereby said grommet can contain a wire harness wired between two body panels.

10. The grommet according to claim 2, wherein said enlarged end section has an end face having a central opening with a peripheral rim; from said rim extends a second tubular portion which has a determined length and comprises a corrugated section along said length, and an end section; from said end section extends a second funnel-shaped portion having a narrowed end section and an enlarged end section having an external face; and wherein said external face is provided with a second circular groove portion, whereby said grommet can contain a wire harness wired between two body panels.

11. The grommet according to claim 3, wherein said enlarged end section has an end face having a central opening with a peripheral rim; from said rim extends a second tubular portion which has a determined length and comprises a corrugated section along said length, and an end section; from said end section extends a second funnel-shaped portion having a narrowed end section and an enlarged end section having an external face; and wherein said external face is provided with a second circular groove portion, whereby said grommet can contain a wire harness wired between two body panels.

12. The grommet according to claim 4, wherein said enlarged end section has an end face having a central opening with a peripheral rim; from said rim extends a second tubular portion which has a determined length and comprises a corrugated section along said length, and an end section; from said end section extends a second funnel-shaped portion having a narrowed end section and an enlarged end section having an external face; and wherein said external face is provided with a second circular groove portion, whereby said grommet can contain a wire harness wired between two body panels.

13. The grommet according to claim 5, wherein said enlarged end section has an end face having a central opening with a peripheral rim; from

said rim extends a second tubular portion which has a determined length and comprises a corrugated section along said length, and an end section; from said end section extends a second funnel-shaped portion having a narrowed end section and an enlarged end section having an external face; and wherein said external face is provided with a second circular groove portion, whereby said grommet can contain a wire harness wired between two body panels.

14. The grommet according to claim 6, wherein said enlarged end section has an end face having a central opening with a peripheral rim; from said rim extends a second tubular portion which has a determined length and comprises a corrugated section along said length, and an end section; from said end section extends a second funnel-shaped portion having a narrowed end section and an enlarged end section having an external face; and wherein said external face is provided with a second circular groove portion, whereby said grommet can contain a wire harness wired between two body panels.

15. The grommet according to claim 7, wherein said enlarged end section has an end face having a central opening with a peripheral rim; from said rim extends a second tubular portion which has a determined length and comprises a corrugated section along said length, and an end section; from said end section extends a second funnel-shaped portion having a narrowed end section and an enlarged end section having an external face; and wherein said external face is provided with a second circular groove portion, whereby said grommet can contain a wire harness wired between two body panels.

16. The grommet according to claim 8, wherein said enlarged end section has an end face having a central opening with a peripheral rim; from said rim extends a second tubular portion which has a determined length and comprises a corrugated section along said length, and an end section; from

said end section extends a second funnel-shaped portion having a narrowed end section and an enlarged end section having an external face; and wherein said external face is provided with a second circular groove portion, whereby said grommet can contain a wire harness wired between two body panels.

17. A wiring harness comprising a group of electrical wires and at least one grommet surrounding a length portion of said group, said grommet comprising an axis and configured to contain a wire harness and being insertable into a through-hole formed in a vehicle panel, said grommet comprising a tubular portion and a funnel-shaped portion, said funnel-shaped portion comprising, sequentially from said tubular portion, a narrowed end section, a frusto-conical wall with external and internal faces, and an enlarged end section that comprises an external face provided with a circular groove portion, wherein:

said circular groove portion forms a circular ridgeline at a position nearest to said tubular portion, said frusto-conical wall comprises a thin wall section having a substantially uniform thickness and extending from said narrowed end section up to a position about half way along said axis in said frusto-conical wall, and a thick wall section having a substantially uniform internal radius and extending from said about half way position to said enlarged end section along said axis; and

said external face of said frusto-conical wall comprises a plurality of shallow recesses which are arranged at given intervals therebetween around the circular direction and which extend in a direction from said narrowed end section towards said circular ridgeline, said shallow recesses leading to deep recesses near said circular ridgeline, whereby protrusions are formed adjacent to said shallow and deep recesses.

18. The wiring harness according to claim 17, wherein said enlarged end section has an end face having a central opening with a peripheral rim; from said rim extends a second tubular portion which has a determined length and comprises a corrugated section along said length, and an end section; from said end section extends a second funnel-shaped portion having a narrowed end section and an enlarged end section having an external face; and wherein said external face is provided with a second circular groove portion, whereby said grommet can contain a wire harness wired between two body panels.

19. A method of providing a sealed passage for a wire harness through a panel, comprising:

forming a through-hole in said panel at a location where said sealed passage is to be provided, said through-hole having rim,

providing a grommet having an axis and configured to contain said wire harness and being insertable into a through-hole formed in a vehicle panel, said grommet comprising a tubular portion and a funnel-shaped portion, said funnel-shaped portion comprising, sequentially from said tubular portion, a narrowed end section, a frusto-conical wall with external and internal faces, and an enlarged end section that comprises an external face provided with a circular groove portion, wherein:

said circular groove portion forms a circular ridgeline at a position nearest to said tubular portion, said frusto-conical wall comprises a thin wall section having a substantially uniform thickness and extending from said narrowed end section up to a position about half way position along said axis in said frusto-conical wall, and a thick wall section having a substantially

uniform internal radius and extending from said about half way position to said enlarged end section along said axis; and

said external face of said frusto-conical wall comprises a plurality of shallow recesses which are arranged at given intervals therebetween around the circular direction and which extend in a direction from said narrowed end section towards said circular ridgeline, said shallow recesses leading to deep recesses near said circular ridgeline, whereby protrusions are formed adjacent to said shallow and deep recesses,

passing said wire harness through said axis of said grommet,

passing said grommet into said through-hole from a face of said panel, with said tubular portion entering first, until said circular groove portion engages with said rim.

20. The method according to claim 19, said method further comprising:

providing said enlarged end section with an end face having a central opening with a peripheral rim, wherein:

from said rim extends a second tubular portion which has a determined length and comprises a corrugated section along said length, and an end section; from said end section extends a second funnel-shaped portion having a narrowed end section and an enlarged end section having an external face; and

providing said external face with a second circular groove portion, whereby said grommet can contain a wire harness wired between two body panels.